



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D3391-025
Job Sheet 168762-C



Part No: D3391-025

Job Qty: 1 ea

Part Name: Aft Tube Assembly



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 11/22/17

Job Tracking No:

Due Date: 12/8/17

Created By: Marie Lajeunesse

Type: Stock

Description:

Customer: Falcon Aviation Services (CFALC01)

PO Box 62030 Abu Dhabi, United Arab Emirates ph:011 971 50 445 0187 fx:+971 2 444 0022.

Note: DWG REV J SHEETS 9,10,11 IPP Rev B 06-02-07 ECN773 dwg rev. D EC IPP Rev:C 06-03-28 Update
Manuf. Instructions JLM IPP rev D 07.03.20 revF dwg EC IPP rev E 07.11.07 rev G dwg ecn 1053p EC verified
by: DD IPP Rev:F 07-11-13 ECN 1056 DD verified by: EC IPP Rev:G 08-09-10 revH as per dwg DD verified
by:EC IPP Rev:H 11.11.14 AS PER REV.I DD verified by:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup	Run	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	12/7/17	12/7/17	0.00	0.00	Start Up Crosstubes		PMP
100	Mori Seiki	1 pcs	12/7/17	12/7/17	2.49	4.17	Mori Seiki TL-40		PMP
110	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC2		PMP
112	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC5		38
120	CNC Vertical Machining	1 pcs	12/7/17	12/7/17	0.00	2.63	HAAS 1		Kt 17-12-02
130	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC2		Kt 17-12-02
140	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC8		AP 17/12/04
150	Skidtubes	1 pcs	12/7/17	12/7/17	0.00	1.03	Skidtubes		M/G
160	CNC Bend Skidtubes	1 pcs	12/7/17	12/7/17	0.00	1.33	CNC Bend Skidtube		M/G
170	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC5		BE
180	Skidtubes	1 pcs	12/7/17	12/7/17	0.00	1.03	Skidtubes		M/G
190	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC5		17-12-21/24
200	HandFinish	1 pcs	12/7/17	12/7/17	0.00	0.58	HandFinish1		20/12-21/24
210	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC7		AP 2
220	Skidtubes	1 pcs	12/7/17	12/7/17	0.00	1.41	Skidtubes		AP 2017-12-21
230	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC5		
235	HandFinish	1 pcs	12/7/17	12/7/17	0.00	0.58	HandFinish2		
240	Spray Paint	1 pcs	12/7/17	12/7/17	0.00	0.25	Spray Paint		POB38670
250	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC14		HL 12-12-27
260	HandFinish	1 pcs	12/8/17	12/8/17	0.00	0.58	HandFinish4		20 12/12/25
270	QC	1 pcs	12/8/17	12/8/17	0.00	0.00	QC5		
280	Packaging	1 pcs	12/8/17	12/8/17	0.00	0.00	Packaging3		
290	QC21-SA	1 Ea	12/8/17	12/8/17	0.00	0.00	QC21		

Part Op 100 - Turn as per Folio FA599 Rev: AA & Dwg D3391 Rev: S ***ensure steady rest is turning true*** REMOVE

Descriptions: STEADY REST AND MACHINIG MARKS****

120 - 1-Machine as per Folio FA 599 Rev: ____ & Dwg D3391 Rev: ____

140 - ***INSPECT INSIDE BORE***

150 - 1-Drill (PILOT HOLE) aft cap holes per Dwg D3391 using DT8803

160 - Form as per Dwg D3391 Using Bend Prog 3391025 4.090

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

DART Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON K6A 1K7 CANADA TEL.: 1 613 632-5200 Email: sales@dartaero.com www.dartaerospace.com	DART Aerospace S014088 Aft Tube Assembly	D3391-025 Start up Operation	Mfg Date: 11/27/17 Job No: 168762-C	DISPOSITION		AGAINST DEPARTMENT/PROCESS						
				Work ☐	Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐				
				Tap ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐				
				Isis ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐				
					Large Fab ☐	Composite ☐	Supplier ☐					
				QTY Effective :			MRB (QSI042) Approval					
				Disposition			Completed By					
							Lead hand / Supervisor Approval Verification					
							QC / QA Coordinator Approval					
				FAULT CATEGORY								
				☐ Temperature/Cure			☐ Power Loss/Surge			☐ Positioned Wrong		
				☐ Set-up			☐ Folio/Program			☐ Outside Dimensions		
				☐ BOM/Route			☐ Grain			☐ Over/Under tolerance		
				☐ Broken/Damage/Defect			☐ Weld			☐ Part Incorrect		
				☐ Inspection Incomplete/Unqualified			☐ Wrong Stock Pulled			☐ Part Lost/Missing		
				☐ Contamination			☐ Out of Sequence			☐ Part Moved		
				☐ Countersink			☐ Off-set			☐ Drawing		
				☐ Cut Too Short			☐ Mislabelled			☐ Finish		
				☐ Instructions Incomplete/Unclear			☐ Fit/Function			☐ Misread		
				☐ Drill Holes			☐ Misaligned/off center			☐ Turning Sequence		
Substation ☐				Process Improvement ☐			Marks/Chatter ☐					
Past Expiry Date ☐				Manufacturing Process ☐								
Misidentified ☐				Past Due ☐			OTHER : ☐					

180 - 1-Open Aft cap pilot hole to .208" as per Dwg D3391 2-Drill float bag holes using DT8809 as per Dwg D3391 (Holes marked "A" Only. 3-Drill wearplate holes as per Dwg D3391 using DT8878 (Mid Tube) & DT8217 Wearplate Jig . *****Do Not Open To Finished Size***** 4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes. 5-Open wearplate holes to 0.297" and c'bore as per dwg D3391 6-Open up all float bag holes to 0.328" and c'sink as per Dwg D3391. 8- Scribe batch # on fwd end

220 - 1- Instal spacers as per dwg D3391 A/R Magnabond 6398 Batch: M137712 exp. date 2018/01 cure time 12hrs as per QSI0015 2- Grind crossbolts flush 3- Back drill using #9 drill 4- Touchup Magnabond 5- Deburr

235 - AND REALODINE AS PER PAR09-043

240 - PRIME AS PER DWG AND QSI005 4.2.1.3.3

260 - 1-Install inserts as per Dwg D3391 2-Install Aft Cap as per Dwg D3391 A/ R Sikaflex-241/-291 M130651 Sikaflex expiry date: 8/05 3- INSTALL WEARPLATES AS PER DWG

290 - 5- Detail DD, open (5) forward wearplate holes 0.375", then use DT10247 and drill holes for nutplates and c'sink. 6-Open wearplate holes to 0.297" and c'bore as per dwg D3391. ***SIX FARTHEST AFT HOLES ONLY*** 7-Open up all float bag holes to 0.328" and c'sink as per Dwg D3391. 8-Deburr 9- Scribe batch # on fwd end

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D6014-090 <u>B139 426</u>	1	36	0	0
220-Skidtubes	D3670-4-200 <u>B165 393</u>	4	78	0	0
260-HandFinish	ALS4-1032-130 <u>5007274</u>	8	12,098	0	0
	D4095-047 <u>FL64 735</u>	1	2	0	0
	D4095-049 <u>M161 988 726</u>	1	28	0	0
	MS20601-AD4W3 <u>SC16824</u>	12	47	0	0
	MS20601-AD4W7 <u>M137148</u>	8	305	0	0
	MS21075L5 <u>500 4898</u>	10	672	0	0
270-QC <u>FA1135998-2</u>	ALS4-1032-225 <u>5000533</u>	4	1,836	0	0
	AN3C4A <u>5019396</u>	6	1,093	0	0
	AN3C5A <u>FL64005</u>	4	280	0	0
	D2646 <u>FL64005</u>	1	152	0	0
	D3672-1 <u>F15067J</u>	2	1,741	0	0
	NAS1149C0332R <u>FA1138404-1</u>	10	3,419	0	0

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : ☐																			

DART AEROSPACE LTD		Work Order: 168762-C
Description: Float Skidtube (412)		Part Number: D3391-3
Inspection Dwg: D3391 Rev: J		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Lathe Section						
14.000	+/-0.010	14.0	✓		TAPE	
3.500	+/-0.010	3.502	✓		VERNOB	
Ø3.200	+/-0.010	3.195	✓			
Ø3.750	+/-0.010	3.75	✓			
30° x 0.060 chamfer	+/-0.010	30° x 0.075	✓			
88.93	+/-0.030	88.93	✓		TAPE	

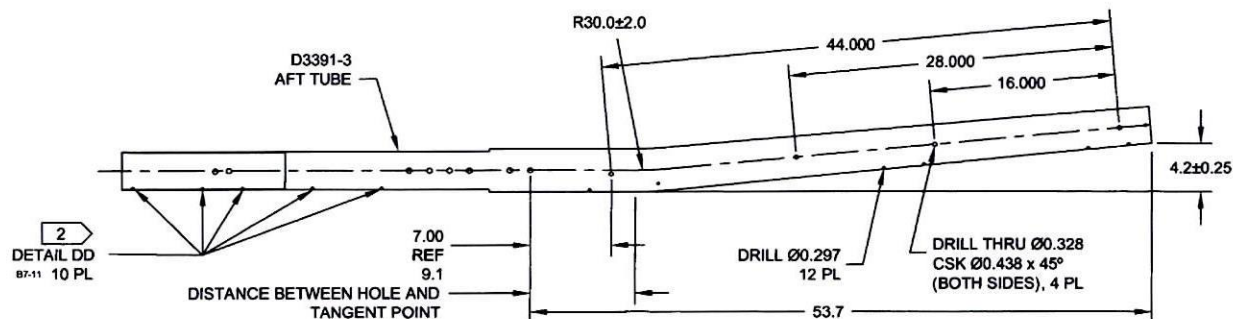
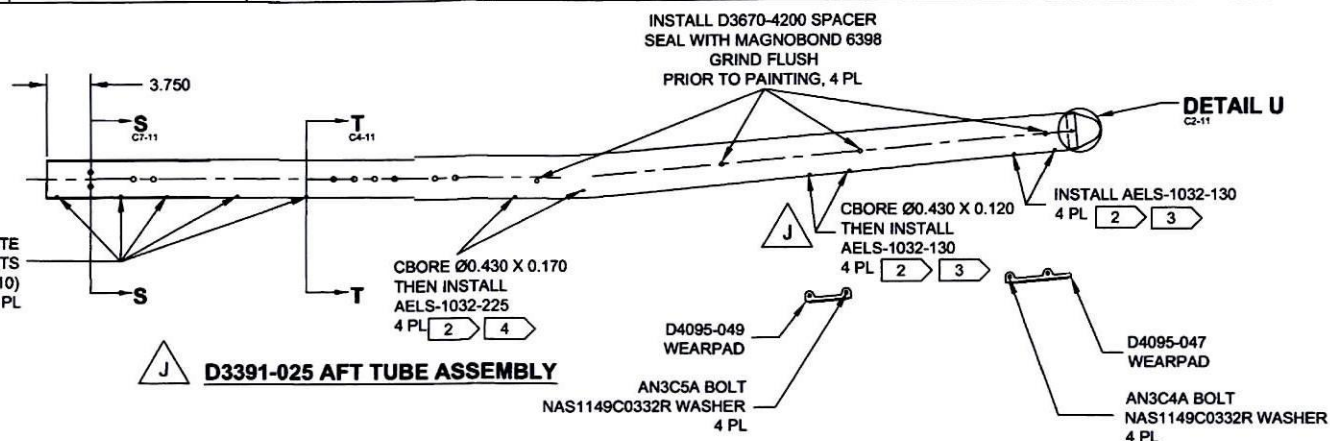
Measured by: PMP	Date: 2017-11-27
Audited by:	Date:

HAAS Section						
1.526	+0.000/-0.030	1.518	✓		Kt-05	verm.
7.500	+/-0.010	7.500	✓		"	"
27.750	+/-0.010	27.750	✓		taps	
31.750	+/-0.010	31.750	✓		" "	
35.250	+/-0.010	35.250	✓		" "	
3.300	+/-0.010	3.300	✓		Kt-05	verm
0.200	+/-0.010	0.202	✓		Kt-05	verm.
3.520	+/-0.010	3.520	✓		micro	
0.687	+0.010/-0.000	0.689	✓		Kt-05	verm.
R0.062	+/-0.010	0.0625	✓		R-G	
Ø0.484	+0.005/-0.001	0.484	✓		PIN.	

Measured by: 1	Date: 17.12.02.
Audited by: 9-89	Date: 17/12/04

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-015/-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	
D	07.09.06	0.400 dimension removed	KJ/JLM	
E	07.11.23	Dwg Rev. updated	KJ/EC/DD	
F	09.04.27	Dimensions updated per Rev H and NCR09-028	KJ/JLM	
G	09.11.16	Dimension 0.200 removed	KJ	
H	11.06.21	Dimension 44.995 removed	KJ	
I	12.05.15	Dwg Rev updated	KJ	
J	12.05.23	Dimension updated	KJ	
K	12.10.15	88.93 dimension removed	KJ	
L	12.11.28	88.93 dimension added	KJ	
M	16.06.23	Dimensions updated per Rev J	KJ	

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 168762C



D3391-025 AFT TUBE ASSEMBLY PARTS LIST

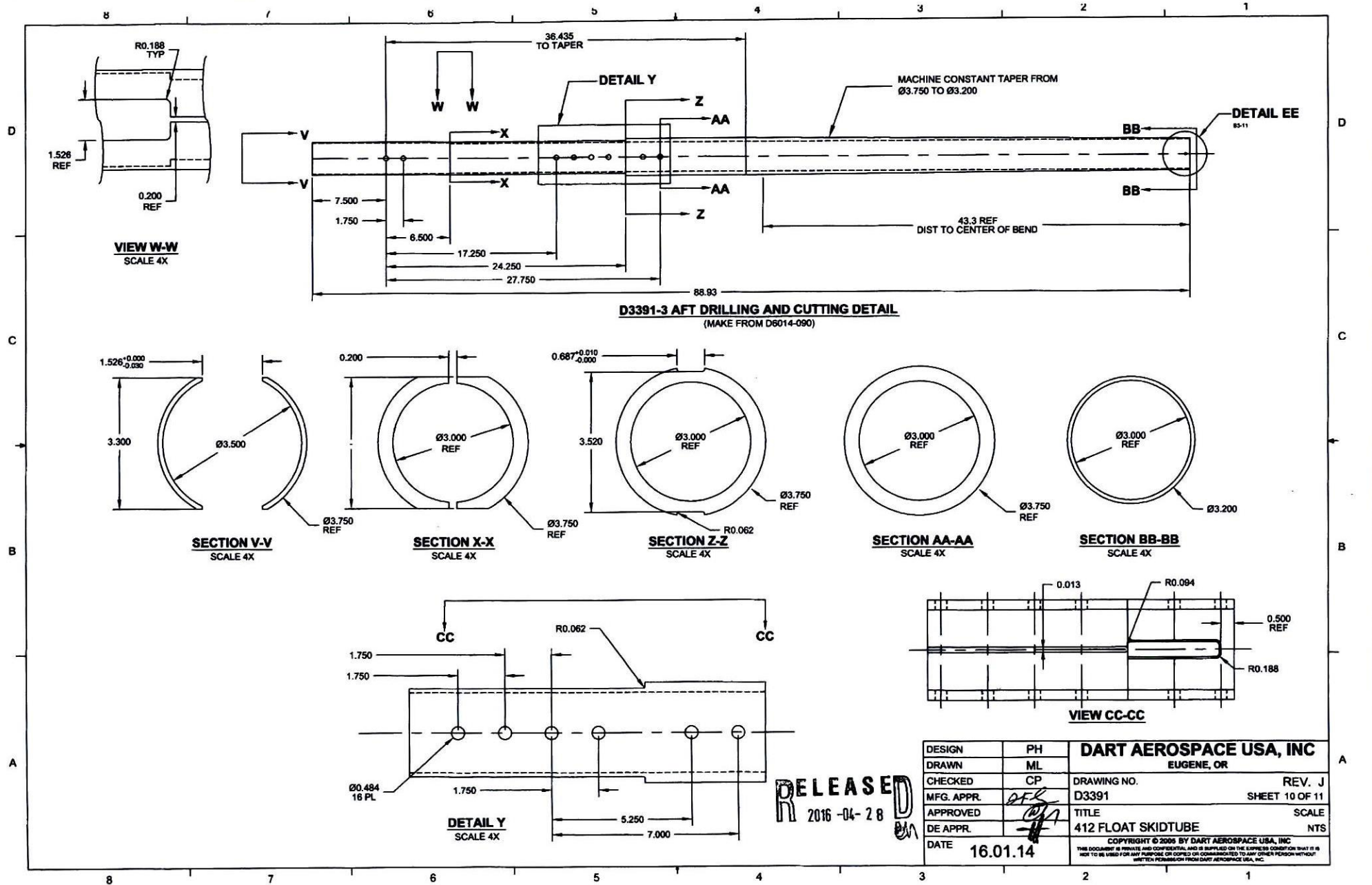
QTY	PART NUMBER	DESCRIPTION
X	D3391-025	AFT TUBE ASSEMBLY
1	D2646	AFT CAP
1	D3391-3	AFT TUBE
4	D3670-4200	SPACER
2	D3672-1	WASHER
1	D4095-049	WEARPAD
1	D4095-047	WEARPAD
8	AELS-1032-130	INSERT
4	AELS-1032-225	INSERT
6	AN3C4A	BOLT
4	AN3C5A	BOLT
20	MS20601AD4	RIVET, BLIND
10	MS21075L5	NUT PLATE FLOATING
10	NAS1149C0332R	WASHER

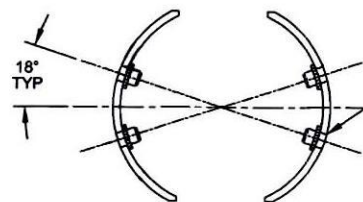
NOTES:

- 1) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
- 2) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED. USE NUT PLATE DRILL JIG IF REQUIRED.
- 3) ENSURE WALL THICKNESS IS BETWEEN 0.070 AND 0.130 BEFORE INSTALLING INSERT
- 4) ENSURE WALL THICKNESS IS BETWEEN 0.130 AND 0.225 BEFORE INSTALLING INSERT

RELEASED
2016-04-28

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.		D3391	SHEET 9 OF 11
APPROVED		TITLE	SCALE
DE APPR.		AFT TUBE ASSEMBLY	NTS
DATE	16.01.14	COPYRIGHT © 2006 BY DART AEROSPACE USA, INC	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.			



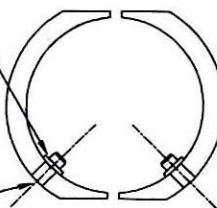


SECTION S-S
D6-8.9
SCALE 5X

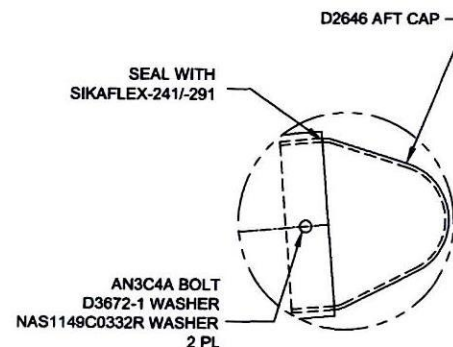
DRILL Ø0.391
CBORE Ø0.516 X 0.040 DEEP
INSTALL ALS4-428-165 INSERT
4 PL

USE DT8217 DRILL TEMPLATE
TO LOCATE HOLES AND OPEN
TO Ø0.375

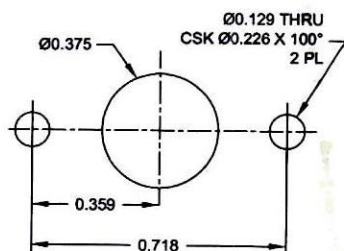
MS21075L5 NUTPLATE
REF



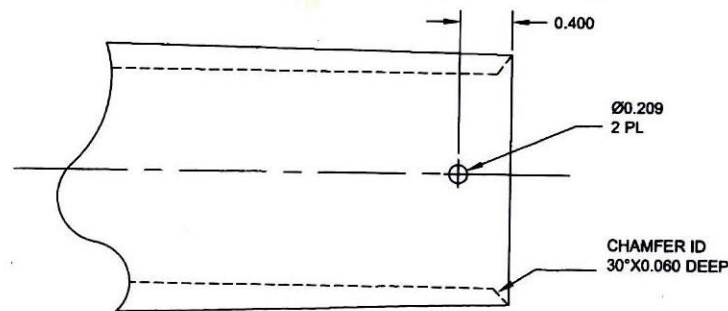
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D6-8.9
SCALE 5X
5 PL
J



DETAIL U
D1-8.9
SCALE 5X



DRILLING DETAIL DD
SCALE 10X
B7-8.9
J



DETAIL EE
SCALE 2X
D1-11
J

NOTES:
1) USE INDUSTRY STANDARD NUT PLATE DRILL JIG IF REQUIRED.

RELEASED
2016-04-28

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.		D3391	SHEET 11 OF 11
APPROVED		TITLE	SCALE
DE APPR.		AFT TUBE ASSEMBLY	NTS
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